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Esmok, the frontier city, is written Sz'mau in the Jesuits' map, and Es-mau in other maps. It is described from hearsay, in McLeod's report, as a walled town, garrisoned with from 300 to 1000 Chinese soldiers, and traversed by merchants' caravans, composed of mules, ponies, and donkeys, carrying on traffic between China, the Laos states, and the Shan States of Siam and Burma, for which last their caravans, passing through Kiang-Hung and Kiang-Tunk, cross the Salween river so far as Moni, &c. McLeod's farthest point was Kiang-Hung, about 40 miles from Esmok. It is on the right bank of the Mai-Kong or Cambodia river, which even here, at the driest time of the year—that also of McLeod's visit—was 500 feet wide, upwards of 15 feet deep, and navigated by laden vessels of various sizes.* The caravans from China cross it in ferry-boats, at fixed charges.

The paper concludes by stating that Esmok is now within 250 miles of our north-east Pegu frontier, and that the two intermediate Burmese Shan princes, the Tswabwua of Kiang-Tung (who was twice visited for several days by Colonel McLeod) and the Tsenwibwua of Kiang-Hung (where the Colonel spent seventeen days), are most desirous of the establishment of a route between British territory and China across their states and through their capitals.

The second Paper read was—

2. *On the various Lines of Overland Communication between India and China.* By DR. M'COSH, late of the Bengal Medical Staff.

FEW nations bordering upon the British dominions are less known than those inhabiting the north-east frontier of Bengal. There our territory of Assam lies in almost immediate contact with China and Ava, separated from each by a narrow belt of mountainous country; possessed by barbarous tribes of independent savages; and yet from this small, savage, and unknown country many navigable branches of the great rivers of Nankin, Cambodia, Martaban, Ava, and Assam derive their origin, offering natural highways of commerce to the great nations of Ultra-Gangetic Asia.

This belt of country, though covered with impenetrable jungle, possesses a cool climate and other conditions congenial to the con-

* At Kiang-Hung the river Mai-Kong or Cambodia is, during the rains, 1600 feet wide. Kiang-Hung is distant from the (now French) fortified city of Saigon at its mouths about 880 miles in a direct line. By the capture of that city and the recent formal annexation of the Cochin Chinese province of Saigon to the French Empire, France has secured command of all the mouths of this very important Asiatic river.

stitution of Europeans. It appears capable of being converted into one continuous garden, that should extend over hundreds of square miles, and produce cotton, silk, coffee, and sugar.

The province of Assam, which leads to it, lies between the Himalaya and some of its mountainous offshoots. It is drained and devastated by the mighty Brahmaputra, which rising thirty or forty feet in the rainy season, inundates the land and renders ordinary earthworks, such as railway embankments, impossible, while itself is little suited to navigation. For days together during a voyage upon its stream neither boat nor human habitation is to be seen; the horizon is bounded by gigantic reeds; and porpoises, turtle, and crocodiles are the chief tenants of its waters. Judging by the rate of premium exacted by the insurance offices on residents in this district, Assam is reckoned to be the most unhealthy province in British India.

Near Suddya, the old frontier station, the Brahmaputra is formed by numerous confluent, of which the Dihong and the Lohet are the principal. They issue through the wall-like range of snowy mountains that here put a limit to the valley of Assam. No less than five roads lead from this district into Tibet or China proper. They will be described in order, premising that our information is drawn from very limited sources—so much so, that no Englishman now living has ever traversed any one of them.

I. *The Pass of the Dihong*.—This river is the main tributary of the Brahmaputra, and is usually considered to be the termination of the great river of Tibet, the Tsan-pu. In this opinion Dr. McCosh does not himself coincide, on the ground of its inferior size; but the arguments he quotes, and the popular belief in favour of the identity of the rivers, are strong. Pilgrims passing by this route reach Mah-loo, the frontier town of Tibet, in sixteen days. Four days farther is a populous city, with a regular Chinese government, called Rhoshee-mah. The Dihong pass is always difficult, and impracticable except in summer. No less than five British officers have penetrated to the capital of the tribe (Abors) who live on the first part of this route. Beyond them are the Bors Abors, regular Tartars, who have never been visited by the British.

II. The Mishmee route is very practicable, but little commerce is likely to flow along it. It leads for a couple of days up the Lohet, to where the river ceases to be navigable, and thence by a footpath ten days farther along its banks, to a place very sacred in Hindu mythology, called Brahmakund. Great numbers of Hindu pilgrims go there for absolution. Captain Wilcox reached it with ease, though the surliness of the people beyond, caused him to return. Captain

Rowlatt made a difficult ten days' journey to Toopang, on the river Doo, during which he succeeded in traversing no greater distance than sixty miles. He met a large party of Lama people, who had crossed from Tibet, but could not get back to their homes, owing to an unexpectedly early fall of snow in the mountain-passes. They were about to spend the winter with the Mishmees, who are the go-betweens to them and Assam. The Mishmees were very friendly to Captain Rowlatt.

III. *The Phungan Pass to Manchee and China.*—This leads over the Wang-leo-bum mountain-range at an altitude of 8400 feet, through a dense jungle of oak, pine, rhododendron, and juniper. No footpath was to be seen; but the travellers Wilcox and Burlton were led by guides, who followed notches in trees, they had made in a previous journey. Venomous flies and swarms of land-leeches infested the forest. There were elephants, buffaloes, and tigers; but these gave no trouble. When they reached the Irawaddi, the travellers were surprised at the smallness of its stream, only eighty yards wide, and fordable. They could hear of no trade whatever between Manchee and China; while, to the north of them, rose a wall of lofty snow mountains, that wholly cut off communication with Tibet. However, in this district the great rivers of Nankin, Cambodia, and Martaban are in close approximation, and are probably navigable onwards to the sea. The native tribes are numerous; all are tributary to, and in dread of, Ava, and all are habitually at war with one another.

IV. *Pathkoy Pass to Bhamo on the Irawaddi, and thence to China.*—This was the route followed by the invading Burmese army, and is by far the most practicable line from Assam to China. At Bhamo it meets a great stream of Chinese commerce between that country and Burma. Caravans of thirty and forty mules or bullocks constantly arrive. About five hundred Chinese are said to come every year to Bhamo and transact business to an amount of 700,000*l.* This road was travelled in part, by Lieutenant Burnet, on his way to the north face of the Pathkoy range, where he was stopped in his attempt to penetrate to Ava, and in part by Lieutenant Hannah, who endeavoured to reach Assam from Ava, and was stopped at the south face of the Pathkoy. In both cases the natives were the obstacles. They are a wild, daring race, and once the terror of the Assamese. Although we have no British account of the Pathkoy range, it is clear that little difficulties can exist there, since the entire Burmese army succeeded in traversing it. The Chinese exports that pass Bhamo are gold and silver ingots, brass and copper vessels, mercury, arsenic, vermilion, carpets, fans, silk fabrics, spices,

rhubarb, musk, dried fruits, &c. The return cargo is cotton wool, ivory, edible birds' nests, and British woollens and calico.

V. *Route by Manipur to the Irawaddi*.—Granting the feasibility and advantage of the Bhamo and China line, it remains a question how best to reach Bhamo. The Irawaddi has all, and more than all, the disadvantages above ascribed to the Brahmaputra, and may not be thought of. However, an excellent opening exists through the mountain valley of Manipur. This was once a populous kingdom, since devastated, like Assam, by the Burmese : it was from here that the Burmese threatened a descent upon Calcutta, and originated the first Burmese war. The treaty that followed the conclusion of that war restored the Rajah of Manipur to his throne, and he is now a well-affected neighbour of British India. The climate of the land is well adapted for Europeans, being cool and healthy ; the soil is admirably fitted for the tea plant. The route proposed by Dr. M'Cosh passes by Dacca and the line of the Barrak River to Bans-kundee ; thence by land to Manipur and Monfu, on the river Ning-tee or Kyan-dwen ; thence across country to Bhamo, and lastly up the Pinlang river into Yunan. A railroad is now being constructed from Calcutta to Dacca ; it might be extended to Bans-kundee. There is already much intercourse between Manipur and Ava down the Ningtee. Captain Pemberton remarked, in a forcible report, on the natural advantages of Manipur as an entrepot to Bengal and Burma : he dwelt on its position, the navigable rivers that passing near it flow in many directions, the healthiness of the climate, and the favourable disposition of its ruler.

Dr. M'Cosh concludes by dilating on the importance of facilitating an overland commerce between India and China by opening a practicable road between them ; he urges that an expedition should be despatched in order to make a thorough survey of these five passes, especially the fifth and the latter half of the fourth ; and he begs the Royal Geographical Society to exert their influence with Government in furtherance of his proposal, the details of which he traces out in full in his paper.

The CHAIRMAN tendered the thanks of the Society to the authors of the papers just read, and observed that of late years the Government of this country appeared to have been too much occupied with the political concerns of India and China to pay sufficient attention to a point of such national importance as the opening of a western route between the two countries.

MR. JOHN CRAWFORD, F.R.G.S., said he had served with Captain Sprye thirty-five years ago in Ava, and had a high respect for him, but felt himself bound, nevertheless, to differ widely from him with respect to his proposed western route. He was not responsible for the sentiments attributed to him in the quotations which had been so freely used by Captain Sprye. The book from which they had been taken was not written by him, as it professed to be, but

by a clerk of his, one Mr. Peter Gordon, who had published it as a production, for which he (Mr. Crawford) was jointly responsible. Yunan was at once the largest and the poorest province in China. It might be called a "great big beast." It was mountainous and barren. The province of Canton was also a poor one. Captain Sprye had said little or nothing respecting the staple trades of China, tea and silk. Yunan produced very little tea—about half the quantity consumed annually in London—and what it did grow was execrably bad. It produced no silk at all. The Chinese themselves would not live there if they could help it, though they would emigrate in large numbers to Australia and California. With regard to Esmok, he doubted the existence of such a place. First of all, it was a word of two syllables, and every one knew the Chinese could not put two syllables together. Moreover, every one in that room knew that Chinese words ended invariably either with a vowel, a nasal, or an aspirate; whereas the two syllables in Esmok ended, the one in the sibilant "s," and the other in the guttural "k." Supposing, however, that such a place existed, the district lying between it and the Rangoon territory was mountainous and most difficult of transit—muddy and malarious also in parts—and from the middle of May to the middle of October it was altogether impassable. Heavy bales of cotton would have to be divided and transported across that difficult region on the backs of donkeys or small ponies, if they could be obtained, besides being subjected to heavy import taxes and the plunderings of barbarous tribes. Under all these circumstances he believed the project to be commercially unsatisfactory, if not altogether impossible. He would as soon think of adopting it as of returning to the old middle-age process of going to India and China overland, and abandoning Vasco da Gama's discovery altogether.

SIR JOHN DAVIS, F.R.G.S., said that highly as he valued the geographical information which had been placed before the Society, he was quite at issue with the two gentlemen whose papers had been read as to the capabilities of the Yunan province. On that point he agreed with his friend Mr. Crawford. But with respect to Esmok, although he had never heard of the place before, he could not go so far as to deny its existence on account of its alleged name. The corruption to which the Chinese language was subject would account for the objections pointed out by Mr. Crawford. At the same time he believed it would be found to lie considerably within the frontier claimed by the Chinese, claiming, as they generally did, much more than they were entitled to. With regard to Du Halde, he, Sir John, placed a modified reliance upon his writings, which were chiefly compiled from the statements of the Jesuits, always grandiloquent as to China. An able and zealous French missionary who had resided thirty years at Peking had informed him of the natural obstacles to commerce and transit which would be encountered in the mountainous province of Yunan, apart from its unproductiveness. At present England enjoyed a trade with the eastern coast of China by sea, and it only required peace and quiet to make it almost illimitable. The ancients called the ocean *dissociabilis*, but it was now the best commercial highway for nations, and it appeared to him that any English merchant awake to his real interests (which, after all, in trade were the safest impulses) would never dream of preferring a land route of such a mountainous character to the sea route. At the same time he had no doubt that, should it be proved that the proposed route presented the facilities which were ascribed to it, the merchants and traders of this country, with their usual enterprise and keenness, would avail themselves of it. With respect to Canton, though it was originally, as Mr. Crawford observed, a poor province, the foreign trade which had been carried on there for 200 years had really made it a very wealthy place. A mandarin was said to be "promoted" to Canton—the only place which was spoken of in that manner—but an appointment to Yunan was considered in a very different

light. Commissioner Lin, after his disgrace, was appointed there to quell a rebellion, and the appointment so ill agreed with him that he died on the route to his uncoveted honours.

CAPTAIN SHERARD OSBORN, R.N., F.R.G.S., thought it was of very little use discussing the point until there was some possibility of gaining access to the interior of China, either by treaty or by conquest. When that point was gained it would be desirable to ascertain the tracks in which the native commerce flowed, and as far as practicable to follow in its footsteps. Surely a country numbering 300,000,000 souls ought to have fifty places of trade instead of five open ports, and yet be able to carry on a profitable trade. With reference to Esmok he was delighted with the information given by Captain Sprye, with whom he felt bound to say his own researches enabled him perfectly to agree. He was sorry that Mr. Crawford repudiated the works from which Captain Sprye had given quotations, but they still had an impartial and able authority in Dr. Williams, whose writings had also been quoted. True, he spoke of Yunan as mountainous, with large portions of table-land, but the products of the province were most valuable, and, Captain Osborn believed, quite accessible. In spite of the difficulties presented by the proposed route, he believed it would eventually be adopted, and it would be a long while before the western provinces were reached except through the Bay of Bengal. He was prepared to the utmost of his power to second and assist Captain Sprye in his efforts to open this route, and he was satisfied that their excellent Chairman would encourage geographers in this endeavour to advance the interests of commerce and the influence of correct geographical knowledge.

MR. LAURENCE OLIPHANT, F.R.G.S., said the question was of a twofold character. Viewed geographically he thought Captain Sprye's proposal highly desirable, but he did not take that sanguine view of the commercial advantages likely to be derived from prosecuting geographical researches in that direction which Captain Sprye did. He was not sure whether Dr. Williams, who had derived much of his information from the Chinese Repository, could be said on some points to be a better authority than Du Halde. With the exception of General McLeod no one had traversed the country over which the proposed route lay, and General McLeod described it as mountainous and barren and difficult of access. The tea produced at Yunan was used by the Chinese very much as Constantia wine was used at the Cape. Whether it would suit English palates or not, he could not exactly say.

MR. W. LOCKHART, F.R.G.S., said the word Semok was a corruption, being intended to convey the sounds of the two characters Sze-mau, but the town really did exist, though it was much more distant from the frontier than was marked on the map. He admitted that serious difficulties would have to be overcome on approaching the town, but he felt that, as geographers, the members of that Society were much indebted to Captain Sprye for the manner in which he had brought the subject forward. He did not argue that all Du Halde's statements were worthy of credit, but many of them certainly were borne out by the statements of others who had given great attention to the topography of China. Dr. Williams, whose name has been mentioned, was a good Chinese scholar, and had paid great attention to the geography of China. The products of Yunan, as testified to by those who were acquainted with the province, comprised almost all the richer minerals—gold, silver, copper, brass, &c.—also precious stones. All China was supplied with copper from Yunan. True, it was a wild country, as most mineral countries were. Its agricultural produce was not sufficient for the consumption of its inhabitants, and they imported rice from the eastern provinces. Not that it was wholly without agricultural wealth, but the vast number of miners who lived there made it requisite to draw upon other provinces for their sup-

port. The Chinese sink deep mines, and it is notorious that their Artesian wells are the deepest in the world. He trusted the day would come when there would be uninterrupted commerce with Yunan from the westward. In the case of such an event taking place, the commerce with the eastern coast would probably not be injured. The cotton and woollen goods from this country would still be taken to the eastern ports, and the tea would continue to be exported from the same places, owing to the weight of the goods, which would preclude their being taken over the western route. At the same time he trusted the Society would support such enterprising travellers as Captain Sprye and Dr. McCosh in their efforts to promote intercourse with Western China and to develop its resources; and he trusted also the day was not far distant when there would be free access for our merchants and travellers to China across the western frontier.

SIR JOHN LOGIE, F.R.G.S., had no personal knowledge of the countries to which the papers which had been read, referred. He was only interested in the subject from its bearings upon our position in India and on our future relations with the empire of China.

When, as we are told by the best authority (Sir Alexander Tulloch, in his evidence before the Royal Commission for the Reorganization of the Indian Army), that no less than 12,000 men are annually required to keep up our European force in India on the present system, exceeding the number of recruits raised annually in the United Kingdom, between 1845 and 1849, for the British army; and that, unless means can be adopted to reduce the mortality and invaliding, we cannot hope to maintain our present force of Europeans in that country, it will at once be seen how important it becomes to ascertain the capabilities of every part of our northern frontier which appears likely to be suitable for the location of our soldiers, or in any way adapted to European colonization.

Having, for the present, shut ourselves out of Cashmir, and Nepal not being available for our purpose, our choice of localities for European settlements on our northern frontier is limited to comparatively small detached localities along the southern ranges of the Himalayas, between Murree and Darjeeling, where there does not appear to be sufficient space for colonization to the extent which would be required to assist materially in keeping up our military strength by recruits of European descent; and, as we can never colonize the plains of India, our only hope of retaining a *permanent* position in those countries is by establishing an Anglo-Saxon population in localities likely to become important from their geographical situation.

Looking at the geographical position of that part of our Indian frontier which approximates to China and the sources of the Yang-tse-Kiang, and to the unexplored tract of country through which some of the rivers of Burma, Siam, Cochin China, and Cambodia are supposed to find their way from Tibet, it has always appeared to him to be very much to our discredit that so little should be known respecting it, and that we should for so many years since our possession of Assam have neglected to ascertain even the nature of the country beyond our frontier, or the difficulties which prevent communication between the two largest sections of the human race.

It is impossible not to be struck with the importance of a position which commands the direct line of intercourse between the two mighty empires of India and of China, and which, if occupied by an enterprising people, might exercise the greatest influence on the future destinies of the East.

As far as our present knowledge extends, the difficulties of intercourse between India and China by this route are more political than physical; and as events now taking place in China may speedily cause the former to disappear, it is desirable that we should be prepared for such a contingency.

On referring to the map of Eastern Asia, we find that there are several

ways by which this position may be reached, and by which communication may be maintained with more or less difficulty :—

1st. By the valley of Assam, in which we are most interested.

2nd. Through Burma and the valley of the Irawaddi.

3rd. If the maps are correct, by the valley of the Lantsang-kiang or Camboja River, of which the French are believed to be in possession.

4th. From China Proper by the Yang-tse-Kiang and its tributaries ; and

5th. From Tibet.

Leaving the French, the Russians, and the Chinese, when organised and accustomed to fight under French and Russian officers, as they soon may be, to consider the advantages of the other routes, and avoiding that through Burma, as likely to lead us into difficulties, and to the expenditure of English lives and English money in foreign states, which might be more profitably employed in consolidating our own, he trusts that the Royal Geographical Society may be induced to recommend to Government that an exploring party may be sent, from our advanced station of Sudiya in Assam, to follow up the investigations of the late Colonel Wilcox, to ascertain the various passes by which access may be had to China in that direction, and whether localities may not be found at which English soldiers, missionaries, merchants, and miners may be advantageously settled on that frontier.

In our preparations for the defence of India against invasion by a Russian army advancing over the steppes of Central Asia and through the defiles of Afghanistan, we have expended thousands of English lives and millions of English money ; let us take care that we may not be called upon to meet a much less chimerical and more formidable danger from another quarter, when, in the disruption of the Chinese empire, we may have to contend against Russian and French influences nearer at hand. The countries to which attention has been drawn are said to be rich in mineral wealth of every description. We have seen what that has done for *California*, *Australia*, and *Columbia* in attracting English enterprise ; and the same influences, under the guidance of Providence, may place us in a position to retain dominion over India, until we can safely make it over to the Christian rule of its native governments, and be united to it by firmer bonds than can in any other way exist.

The CHAIRMAN, in closing the meeting, congratulated the Society upon the discussion which had taken place. Whatever might be thought of the commercial advantages of the proposed routes, one thing was certain, namely, that geographical curiosity had been excited by the papers which had been read, and geographers would now be stimulated to go on with those inquiries which had been thought so important by former Governors-General of India.

The meeting was then adjourned till January, 1861.

Fourth Meeting, Monday, January 14th, 1861.

LORD ASHBURTON, PRESIDENT, in the Chair.

PRESENTATIONS.—Colonel W. K. Loijd, and Walter Spencer Stanhope, Esq., were presented upon their Election.

ELECTIONS.—The Right Hon. H. U. Addington ; Consul A. W. Hanson ; Sir R. Digby Neave, Bart. ; Colonel T. P. Shaffner, of the U. S. ; Captain A. Wilson ; and S. Orchart Beeton ; C. J. A. Rumbold ; T. H. Rumbold, and J. Ralph Shaw, Esqrs., were elected Fellows.

ACCESSIONS.—Among the accessions to the Library and Map-rooms since the former Meeting were the Radcliffe Catalogue of Stars; Bohn's Pictorial Geography; Bagster's Bible of Every Land; Stainton's Entomologist's Annual for 1861; Stanford's Australia; Commander Maury's Storm and Rain Chart; M'Douall Stuart's Map of his discoveries in Australia; Schwenzen's Map of Sweden, Denmark, and Norway; Williams's Map of Pegu, and Hobday's Martaban; Du Chaillu's Western Equatorial Africa, &c.

EXHIBITIONS.—Certain specimens of Australian Ores, presented to him by Mr. A. C. Gregory, of the North Australian Expedition, were exhibited by Professor J. Tennant, F.R.G.S.

The Paper read was—

Journal of his Expedition across the Centre of Australia, from Spencer Gulf on the South to Latitude 18° 47' on the North. By J. McDouall Stuart.

Communicated by Messrs. CHAMBERS and FINKE, through SIR R. I. MURCHISON,
VICE-PRES. R.G.S.

[The paper will be printed in the Journal.]

FROM the Journal of Mr. Stuart it appears that he left Chambers Creek, in South Australia, at the beginning of March last year, with Mr. Keckwick and one other man, and proceeded in a north-westerly direction, his object being to penetrate across the continent. As he proceeded, instead of meeting with an arid desert, as geologists had predicted, he found a well-watered country, with numerous creeks, several rivers, abundance of grass and scrub. The geological character of the country for the first 400 miles was tertiary and secondary, and occasionally he saw large masses of sandstone. He then crossed a high primary range, and for the remainder of his advance met with little else than the older rocks, or those of volcanic formation. He proceeded without meeting with any serious obstacle, and without encountering any of the natives, until he reached the centre of Australia. There he erected a pile of stones, planted the British flag, and enclosed within the pile a bottle containing a paper with a notice of the fact. This occurred on the 16th of June. On his progress north-west his difficulties commenced. The scrub was in places impenetrable, and he was obliged to make his route more easterly towards the Gulf of Carpentaria. Water became scarce, and the soil sandy. The vegetation hitherto met with had been principally scrub and gum-trees, but on approaching the central regions he saw palm-trees. Water was procured at a short distance under ground, but there was none on the surface.